



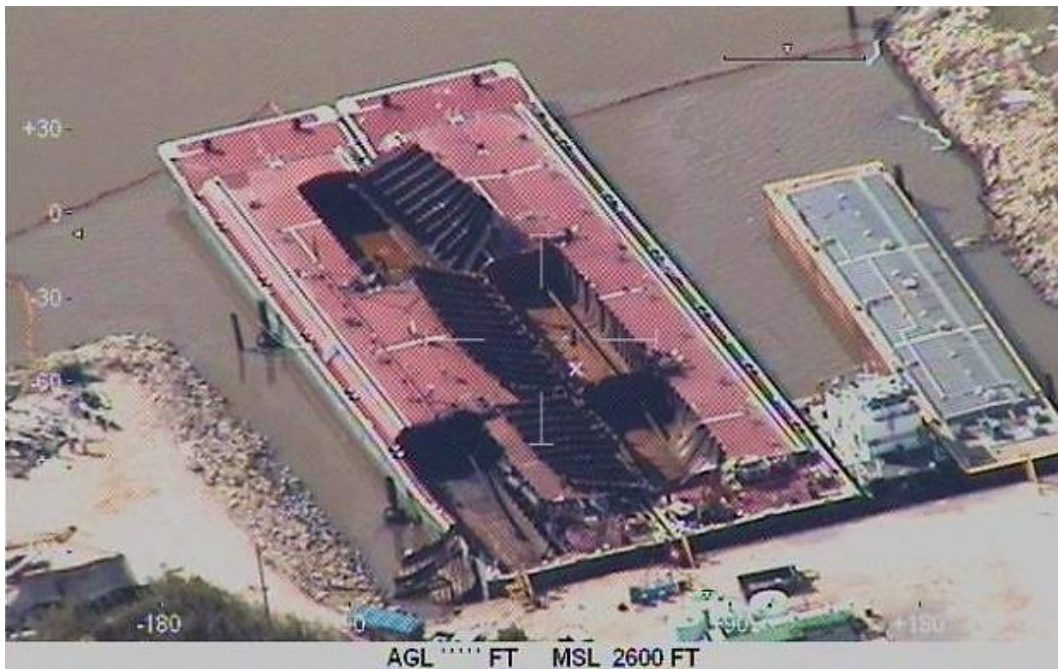
National Transportation Safety Board

Marine Accident Brief

Fire and Explosions On Board Towing Vessel *Safety Runner* and Kirby Barges 28182 and 28194

Accident no.	DCA13NM019
Vessel names	Towing vessel <i>Safety Runner</i> and Kirby barges 28182 and 28194
Accident type	Fire and explosions
Location	Mobile River, mile marker 0; Mobile, Alabama 30°41.14' N, 88°01.55' W
Date	April 24, 2013
Time	2030 central daylight time (coordinated universal time – 5 hours)
Injuries	Three serious burn injuries
Damage	\$5.7 million
Environmental damage	30 gallons of diesel oil from a shore-side tank dislodged by the explosion
Weather	Calm winds; 10+ miles visibility; air temperature about 70° F; 96% humidity
Waterway information	The Mobile River, located in southern Alabama, is about 45 miles in length from its mouth at Mobile Bay up to the confluence of the Alabama and Tombigbee rivers

On April 24, 2013, at 2030 local time, the towing vessel *Safety Runner* docked on the Mobile River in Mobile, Alabama, alongside two Kirby barges that were having their tanks cleaned. Shortly thereafter, flammable vapors being vented from the barges' open tank hatches entered the *Safety Runner*'s engine room and ignited. The fire spread from the towing vessel to the barges, resulting in explosions. Three persons sustained serious burn injuries. The total damage to the vessel and barges was estimated at \$5.7 million.



Left to right: Damaged Kirby barges 28182 and 28194 (red-colored and alongside each other), and towing vessel *Safety Runner* (white-colored). To the right of the *Safety Runner* is another barge, DM 975 (gray-colored), which was not damaged in the fire. (Photo by the United States Coast Guard)

Fire and Explosions On Board Towing Vessel *Safety Runner* and Kirby Barges 28182 and 28194

At 0030 on the morning of April 24, 2013, the towing vessel *Ricky J Leboeuf* delivered Kirby barges 28182 and 28194 to the Oil Recovery Company (ORC) Gas-Freeing Marine Terminal (“ORC Facility”) in Mobile for tank cleaning. The two barges held a total of about 11 barrels (462 gallons) of residual natural gasoline, a liquid, flammable, first-distillation of crude oil. After drop-off, the *Ricky J Leboeuf* remained at the stern of the two barges.

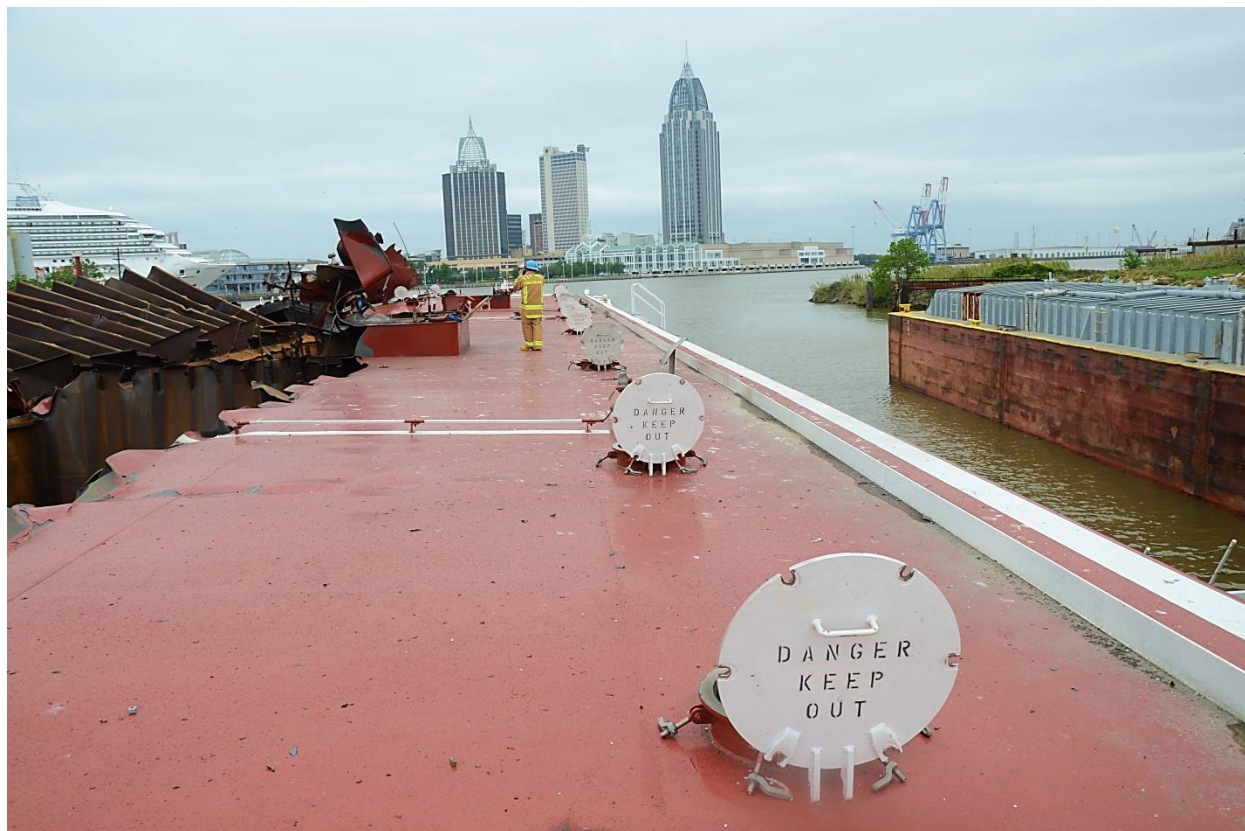


Aerial image of a section of Mobile, Alabama. The ORC Facility, located on the east side of the Mobile River, is circled in yellow. (Background by Google Earth)

At 1200, the ORC person-in-charge (PIC) of the tank-cleaning operation and a second ORC employee boarded the barges to begin the scheduled work. A third ORC employee served as the PIC for the vacuum truck that was to receive the residual gasoline from the barges. Also at 1200, another barge—the *DM 976*—arrived at the ORC Facility for tank cleaning.

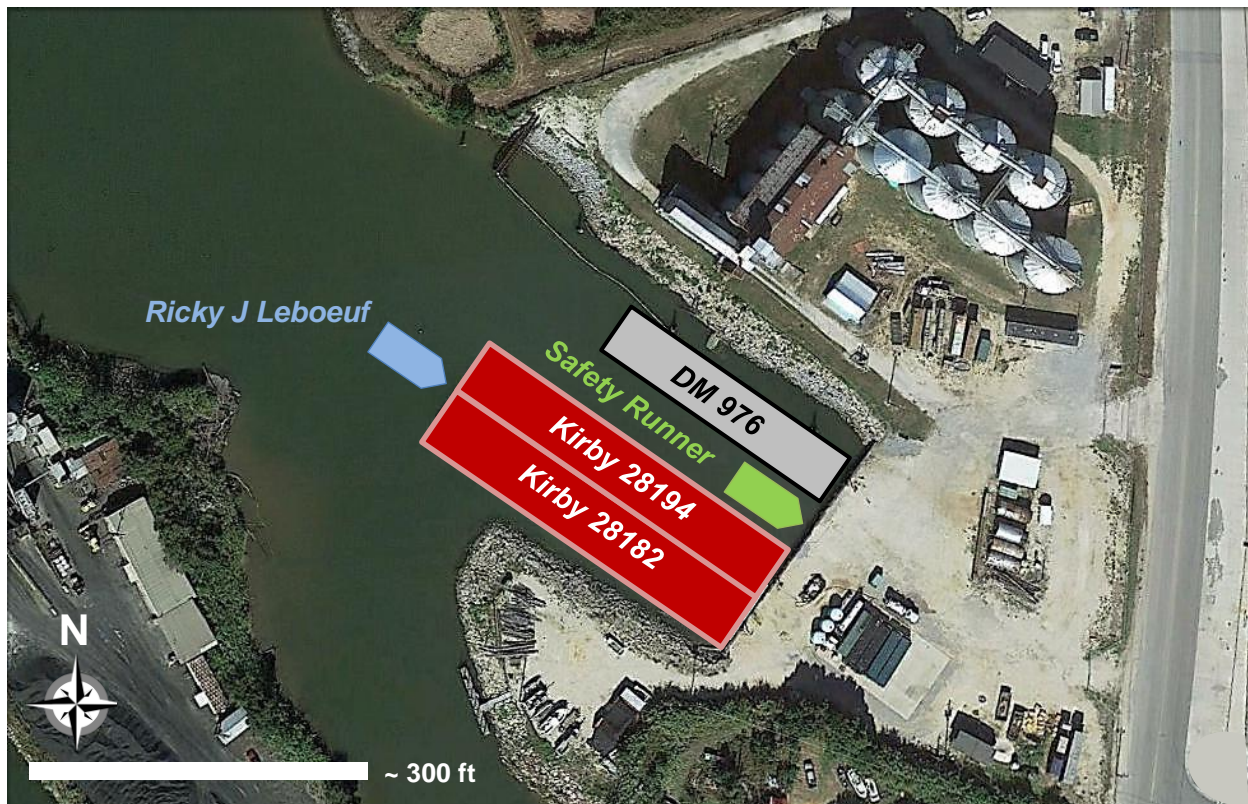
Between 1200 and 1300, the two ORC employees opened all cargo tanks and hatches on the Kirby barges and began to strip the tanks of residual gasoline. Flammable vapors vented to the atmosphere from the hatches and deck openings. Several hours later, at 2000, the two ORC employees finished stripping the tanks and installed six portable pneumatic fans on board each barge to help ventilate the tanks. About the time that the portable fans began ventilating the tanks, recorded weather data reported an air temperature of about 70°F, humidity of 96 percent, and calm winds.

Fire and Explosions On Board Towing Vessel *Safety Runner* and Kirby Barges 28182 and 28194



Open tank hatches on *Kirby 28194*, photographed after the accident, through which flammable vapors were being vented. Undamaged barge *DM 976* can be seen on the right. (Photo by the Coast Guard)

One of the ORC employees later told investigators that, sometime between 2000 and 2030, an air hose disconnected from one of the fans on board *Kirby 28182*, and the fan malfunctioned. He recalled that the PIC shut down two dockside compressors that powered the fans before they investigated the fan malfunction. He said that while the PIC examined the fan, the captain of the *Safety Runner* pulled his vessel into the facility between *Kirby 28194* and *DM 976* to drop off a radio technician. The captain of the *Safety Runner* later told Coast Guard investigators that he was unaware of the tank-cleaning operation in progress.



Aerial view of the ORC Facility. Overlaid in the image are icons representing the vessels and barges that were present at the time of the accident, and their approximate positions. (Background by Google Earth)

The captain of the *Safety Runner* told investigators that, shortly after the radio technician departed the vessel, the *Safety Runner*'s main engines "started to run away." Tank vapors from the barges had begun entering the air intakes for the *Safety Runner*'s main diesel engine, and this fueled the engines. The captain tried to shut down the engines from the vessel's pilothouse, but failed. Two deckhands then activated the engine's emergency shutdowns on the vessel's main deck; however, the engines still did not shut down. The concentration of the vapors from the tank barges was high enough that it introduced additional fuel to power the engines, even though the vessel's normal fuel supply had been shut off.

Shortly thereafter, witnesses reported seeing flames shooting along both sides of the *Safety Runner* and onto the two Kirby barges, resulting in several explosions. The crews of the *Safety Runner* and the *Ricky J Leboeuf* sounded their vessels' general alarms. The *Safety Runner*'s entire crew then abandoned the vessel ashore and the *Ricky J Leboeuf*'s crewmembers disconnected their vessel from the Kirby barges and maneuvered away from the facility.



The accident scene. (Photo by the Coast Guard)

Three people sustained serious burn injuries: (1) The ORC PIC, who was standing on the deck of the *Kirby 28182*; (2) a *Safety Runner* deckhand, who was standing on the starboard side of the *Safety Runner*'s main deck near the emergency shutdowns; and (3) the radio technician from the *Ricky J Leboeuf*, who was standing on land immediately in front of the *Safety Runner*. On shore, ORC personnel and the *Safety Runner* crew moved away from the burning tug and barges, aided the injured, and contacted emergency response agencies. Between 2030 and 2057, local fire and police departments received notifications and responded to the scene. At 2057, another explosion occurred, damaging nearby structures and first-responder vehicles. Emergency responders then evacuated all persons from neighboring buildings and vessels within a 1-mile radius. Coast Guard Sector Mobile closed the mouth of the Mobile River to vessel traffic and established a safety zone around the accident scene. The two Kirby barges burned for more than 6 hours and sustained several more explosions. Shortly after sunrise on the morning of April 25, 2013, the Mobile Fire Department declared the area safe for responders.

Investigators could not determine the source of ignition inside the *Safety Runner*'s engine room. This space, together with the vessel's main deck area, was extensively fire-damaged. Kirby declared its two barges total losses. The damage amount for the towing vessel and two barges was estimated to be \$5.7 million. The *Ricky J Leboeuf* and *DM 976* were not damaged.

Investigators found evidence of inadequate management oversight by ORC, including employing a barge PIC without proper credentials, and not having an operations manual that specifically addressed tank cleaning operations at the ORC Facility. Instead, ORC used an operations manual intended only for mobile facilities, such as vacuum trucks and tankers. Further, in that manual, ORC had attached pages from the Oil Companies International Marine

Fire and Explosions On Board Towing Vessel *Safety Runner* and Kirby Barges 28182 and 28194

Forum (OCIMF) International Safety Guide for Oil Tankers and Terminals (ISGOTT) that described only what procedures ought to be contained in operations manuals, rather than writing its own procedures specific to the risks associated with tank-cleaning operations at the ORC Facility. The manual did not address hazards associated with motor vessels—full of ignition sources—docking alongside barges during tank-cleaning operations.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the fire and explosions involving towing vessel *Safety Runner* and Kirby barges 28182 and 28194 was the failure of the ORC Facility to isolate tank-cleaning operations from sources of ignition. Contributing to the accident was ORC's failure to provide its employees with tank-cleaning training and procedures that followed industry standards and government regulations for reducing the risk of fire during tank-cleaning operations.

Vessel Particulars

Vessels	<i>Safety Runner</i>	<i>Kirby 28182</i>	<i>Kirby 28194</i>
Owner/operator	J Russell Flowers Inc.	Kirby Inland Marine, LP	Kirby Inland Marine, LP
Port of registry	New Orleans, LA	Wilmington, DE	Wilmington, DE
Flag	USA	USA	USA
Type	Uninspected towing vessel	Tank barge; bulk liquid cargo (grade A and lower)	Tank barge; bulk liquid cargo (grade A and lower)
Year built	2010	2012	2012
Official number (US)	1225248	1238006	1239404
IMO number	N/A	N/A	N/A
Construction	Steel	Steel	Steel
Length	70 ft (21.4 m)	300 ft (91.44 m)	300 ft (91.44 m)
Draft	10 ft (3.0 m)	12 ft (3.7 m)	12 ft (3.7 m)
Beam/width	28 ft (8.5 m)	54 ft (16.5 m)	54 ft (16.5 m)
Gross and/or ITC tonnage	164 gross tons	1,632 gross tons	1,632 gross tons
Engine power; manufacturer	Diesel reduction	N/A	N/A
Persons on board	6	0	0

For more details about this accident, visit www.nts.gov/investigations/dms.html and search for NTSB accident ID DCA13NM019.

Adopted: July 14, 2014

The NTSB has authority to investigate and establish the probable cause of any major marine casualty or any marine casualty involving both public and nonpublic vessels under 49 *United States Code* 1131. This report is based on factual information either gathered by NTSB investigators or provided by the Coast Guard from its informal investigation of the accident.